NEWSLETTER - OCTOBER 2010

Dronacharya College of Engineering

ISSUE

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Mechanical Engineering Department

In This Issue....

From Editor's Desk :

During the ***last 13 years, Dronacharya College of Engineering, Gurgaon*** has developed very well and has been recognized as one of the reputed Engineering Colleges in Haryana & NCR. The College has well qualified and experienced faculty, supporting staff members, state-of-the-art laboratory and workshop facilities, library and information center, outdoor and indoor games, air-conditioned Auditorium, round the clock Wi-Fi facilities & separate hostels for boys and girls.

The College has a full fledged training and placement center. This center organizes several training programmes related to soft skills, interviews etc.and also train Dronacharyans to get placed in reputed orgainsation.

We, at DCE, also provide facilities to the students to take part in co-curricular activities. There is an active ***National Service Scheme (NSS)*** unit which organizes different programmes related to social services. Here, the students are encouraged to participate in inter-college competitions in outdoor/indoor sports, cultural events and technical paper presentation competitions. The College also organizes several seminars, workshops etc to bridge the gap between academia and industry.

The philanthropist and vibrant personality, ***Dr. Satish Yadav, Hon'ble Chairman, Dronacharya Group of Institutions*** has a vision to cater to the socially unprivileged, poor and backward sections of the rural areas with easy accessibility and affordability. We are committed to transform his vision into reality through ensuring good results and 100% placement of students.

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From HOD's Desk :

"Winners-even in mundane, declining, battered or regulated Environments - don't do only a percent or two better than the Norm. They do hundreds of percent better - at least".

This newsletter serves as an excellent communication channel among the students, staff and alumni of DCE, Gurgaon to interact and update themselves on the various developments that are taking place from time to time. First law of Thermodynamics established the correlation and co-existence of two significant forms of energy, HEAT & WORK, which envelop the entire civilization on this universe. Second law of thermodynamics could spell out the directional constraints in the process of their convertibility and utility.

Today's scenario of technical education gets the resemblance of FIRST LAW in the sense that let there be any amount of generation of technical manpower, why to bother for the end use. This leads to growing negligence towards the objective to achieve Quality of Life, Socio-economic balance and conceptualization of capabilities and resources. We, at DCE, believe to have quality with quantum in every sphere of life.

Our faculty members and students are already working on research publication, innovative and application oriented projects. They have contributed valuable research papers in ***Dronacharya Research Journal***.

I am also thankful to our ***Hon'ble Principal, Prof (Dr.) B. M. K. Prasad and worthy Dean-Academics, Prof. Onkar Singh***, for their motivation and valuable suggestions.

Head of Department ME (Prof. S. K. Bagga)

Diksha Samaroh -2010 :

Dronacharya College of Engineering, Gurgaon organized a welcome function ***"Diksha Samaroh" on 10th September, 2010*** (Friday), extending a red-carpet welcome to the new entrants. On this occasion, they were encouraged to hit the target and the ragging free campus made them enthusiastic.

The function started after lighting the Lamp by the ***Chief-Guest, Hon'ble Dr. Satish Yadav, Chairman, Dronacharya Group of Institutions.*** Extending heartiest welcome to brilliant and ambitious aspirants, he shared his belief in amelioration, escalation and exaltation. Hon'ble Sir reminded that the management is sincere and sensitive to social issues which concern the villages as well as State, Nation and mankind in general. He also ensured that the college fraternity is putting their best to craft students' career by combining intelligence with diligence.

The eminent scholar, worthy and dedicated ***Principal, Prof. (Dr.) B. M. K. Prasad*** also addressed the students who have manifested an unflinching faith in ***DCE, Gurgaon***. He promised that following the tradition, the students will be viewed with admiration and compassion at college campus. The ***dynamic Dean Academics Prof. (Dr.) Onkar Singh***, all HODs and Administrative Staff also blessed the prospective engineers and reminded their dream destination.

On this auspicious occasion, the cultural events were organized by the senior ***Dronacharyans***. A confluence of music, dance dramatics and community lunch made the function unforgettable.

The Hon'ble Chairman , Dr. Satish Yadav distributed ***cash and cheque prizes of high values, certificates, tantalizing trophies and shields to 45 students*** for mesmerizing performance and their excellent achievements in the merit list of M.D.University, Rohtak. The cultural committee and judges selected and honoured ***Mr Sidhdharth Chaudhary Mister Fresher and Miss Sania Puri Miss Fresher 2010***. ***Hon'ble Chief-Guest Dr. Satish Yadav*** also gave away cash awards to the students from weaker sections and girl students to promote technical education in rural areas.

Hon'ble Chairman, Dr. Satish Yadav, blessing the new entrants on the occasion of Diksha Samaroh-2010

A Still from Diksha Samaroh-2010

Mr. Rohit Kumar, a meritorious student from Mechanical Engineering Deptt., receiving prize - a cheque of worth Rs. 1,00,000 from our Chairman

Talents of 2010-Miss Fresher-SANIA PURI & Mister Fresher-SIDDHARTH CHAUDHARY along with Our Hon'ble Chairman and Principal

Hon'ble Chairman, Dr.Satish Yadav, receiving the memento from dynamic Principal, Prof (Dr.) B. M. K. Prasad on Diksha Samaroh-2010

Live Project Undertaken by Students :

Propeller Based Hybrid car

Today the world is of hybridization. To depend on conventional sources is not safer now. So we are proposing a "Propeller Based Hybrid Car". A Propeller Based Hybrid Car is a vehicle that uses two or more distinct power sources to move the vehicle. In our project the vehicle we are making is using two kinds of power sources i.e. D.C Motor and Battery operated Propeller. We have thought of using the air propulsion technique to run a car and in this car we would use hybrid technology. The air propeller in the front will push the air backwards and on account of Newton's Third Law the car will move in forward direction. It will be an eco-friendly vehicle when motor and wind powers are used as a fuel.

Project Guide

- Mrs. Geetha Varma

Team

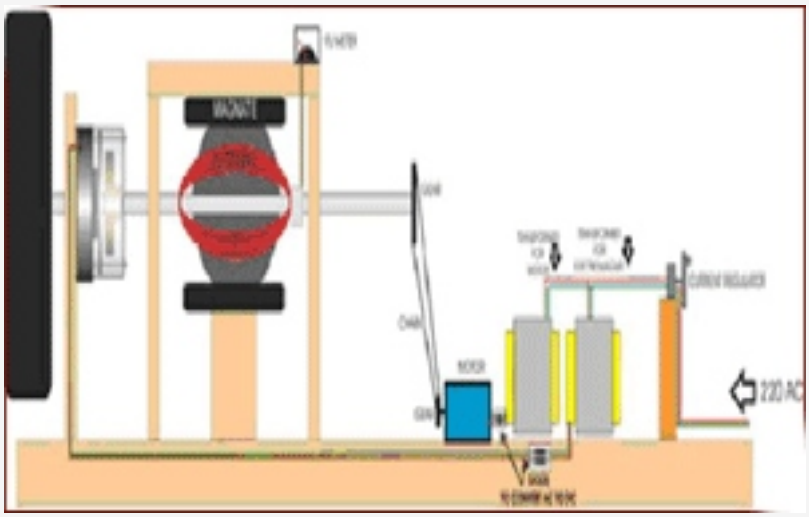
- Nishith Yadav (9238)
- Rohit Garg (9250)
- Sajal Sharma (9252)

Electromagnetic spring applied brake system

In our project we will use the concept of electromagnet. When we supply electric current to a solenoid it behaves like a magnet. This system can be used in small scale industries. Generally when there is a power cut, the rollers sometimes get freely revolved due to which either the job falls of the bed or the worker gets injured because sometimes the conveyor backs off. Here our system comes into play, it will prevent the rollers to revolve freely whenever there is an unnecessary power cut.

When we apply electric current the electromagnet will attract the metal disc towards it and this disc in turn will squeeze the spring leaving free space for the cork disc to rotate freely. This cork disc is fixed on the shaft.

If there is power cut the electromagnet will release the metal disc and the spring will force the metal disc on the cork disc hence stopping the rollers instantly.



Project Guide

- Mr. Achin Srivastav

Team

- Anurag Yadav (9217)
- Arun Yadav (9220)
- Nagesh Bhardwaj (9234)
- Sunil Verma (9263)

Stair Climbing Wheelchair

Basically the wheelchair will move with the help of four D.C motors connected to the wheels. These motors are driven by a battery. The power supplied to the wheels will make them move on the plane like any other ordinary wheelchairs.

Here we are using caterpillar tracks made of rubber with sufficient coefficient of friction that when an obstacle comes in the way of wheelchair it will overcome it. The rubber caterpillar tracks will not slip back while climbing the stairs. The speed of motor is adjusted such that it will balance the weight of the chair as well as the person sitting on it. This will help in safe working of wheelchair without any danger of hurting the person sitting on it.

When the chair will start ascending the stairs then first of all its front portion will ascend the first step. Similarly as it will move ahead the back pair of wheels will also start ascending the steps. The caterpillar tracks are chosen such that when ever there is free inclination the tracks will bend and get placed on the plane.

Project Guide

- Prof. D. S. Sharma
- Prof. Rajesh Kr. Tripathi

Team

- Bhim Choudhary (9222)
- Bhuwan Chhillar (9223)
- Jayant Yadav (9231)
- Vaibhav Dudeja (9269)

Technology Focus :

Nanomaterials - Revolutions in Mechanical Engineering

Nano-materials are a field that takes a material science based approach to nanotechnology. Nanoscale is usually defined as smaller than a one tenth of a micrometer in at least one dimension though this term is sometimes also used for materials smaller than one micrometer. Nanotechnology is the vastly increased ratio of surface area to volume present in many nanoscale materials which makes possible new quantum mechanical effects, for example the "quantum size effect" where the electronic properties of solids are altered with great reductions in particle size. This effect does not come into play by going from macro to micro dimensions. However, it becomes pronounced when the nanometer size range is reached. Catalytic activities also reveal new behavior in the interaction with bio-materials. Nanotechnology can be thought of as extensions of traditional disciplines towards the explicit consideration of these properties. Additionally, traditional disciplines can be re-interpreted as specific applications of nanotechnology. Broadly speaking, nanotechnology is the synthesis and application of ideas from science and engineering towards the understanding and production of novel materials and devices.

Nanoparticles have been used as quantum dots and as chemical catalysts. Nanoparticles are of great scientific interest as they are effectively a bridge between bulk materials and atomic or molecular structures. Size-dependent properties are observed such as quantum confinement in semiconductor particles, surface plasmon resonance in some metal particles and superparamagnetism in magnetic materials. Nanoparticles exhibit a number of special properties relative to bulk material. For example, the bending of bulk copper (wire, ribbon, etc.) occurs with movement of copper atoms/clusters at about the 50 nm scale. Copper nanoparticles smaller than 50 nm are considered super hard materials that do not exhibit the same malleability and ductility as bulk copper. The change in properties is not always desirable. Ferroelectric materials smaller than 10 nm can switch their magnetisation direction using room temperature thermal energy, thus making them useless for memory storage. For example gold nanoparticles appear deep red to black in solution. The often very high surface area to volume ratio of nanoparticles provides a tremendous driving force for diffusion, especially at elevated temperatures. Sintering is possible at lower temperatures and over shorter durations than for larger particles. This theoretically does not affect the density of the final product, though flow difficulties and the tendency of nanoparticles to agglomerate do complicate matters. The surface effects of nanoparticles also reduce the incipient melting temperature.

Materials reduced to the nanoscale can suddenly show very different properties compared to what they exhibit on a macro scale, enabling unique applications. For instance, opaque substances become transparent (copper); inert materials attain catalytic properties (platinum) stable materials turn combustible (aluminum); solids turn into liquids at room temperature (gold); insulators become conductors (silicon).

Assistant Professor ME (Mr. Arpit Srivastav)

Student's Viewpoint :

"Study serves for delight, for ornament and for ability"

I am happy to express my views about the Mechanical Engineering Branch where I have earned not only technical education but also molded my personality and character through various modules of personality developments and yoga. I wish to be associated with the HOD, faculty, staff and college in the years to come.

Sandeep Kumar *(Roll No. 10312)*

"To know how to suggest is the art of teaching"

Dronacharya College of Engineering is one of the esteemed organizations in Haryana and the Department of Mechanical Engineering has state-of-art labs, dedicated faculty and staff members. The college not only imparts the technical knowledge but also teaches us how better we can serve the society & nation. I am really thankful to the faculty, staff and the HOD Mechanical Engg. Deptt. for shaping my personality.

Megha Malhotra *(Roll No. 10289)*

"The roots of education are bitter, but the fruits are sweet"

It gives me immense pleasure to be coupled with the Department of Mechanical Engineering where I earned not only the technical knowledge but also improved my communication skills, body language and personality. I am really ***thankful to my HOD, Prof. S. K. Bagga***, faculty and staff members for grooming and nurturing me overall.

Sahil Kr. Narang *(Roll No. 10311)*

"Education is the chief defence of nations"

I take this opportunity to express my views on Mechanical Engineering Deptt. Every faculty member has groomed us for personality development, motivation, communication skills, positive attitude and behavior, self esteem and leadership etc. They also prepare us for placements in various MNCs. I wish to be associated with the faculty of this esteemed Department of Dronacharya College of Engineering, Gurgaon.

Sumit Saini *(Roll No. 10320)*